Amendments to the Specification:

Please replace the paragraph beginning on page 3, line 5, with the following rewritten paragraph:

The example shown in Fig. 16 will be schematically described using Fig. ~~20(A).~~20. Fig. ~~20(B)~~20 represents output of the detection ~~signal corresponding to the respective points in Fig. 20(A).~~signal. In the present example, it is assumed that the measurement surface of the workpiece W is parallel to Z-axis.

Please replace the paragraph beginning on page 3, line 15, with the following rewritten paragraph:

After ~~the~~ step 1, the contact portion 22 is in contact with the measurement surface of the workpiece W and the detection signal reaches the reference position signal value (reference signal value) at point P1.

Please replace the paragraph beginning on page 3, line 28, with the following rewritten paragraph:

When the detection signal reaches the reference signal value by the movement of the contact portion 22 in ~~the~~ step 3 (point P3), a scanning vector having a predetermined magnitude is generated in a direction connecting the points P1 and P3 and the contact portion 22 is moved according to the scanning vector (step 4).

Please replace the paragraph beginning on page 6, line 5, with the following rewritten paragraph:

Such problem also occurs when surface profile of a workpiece is measured with a non-contact probe. For instance, the sensor head of an electrostatic capacitance probe

disclosed in Japanese Patent Laid-Open Publication No. 2001-194105 has a sensor electrode and a reference electrode arranged in a ring surrounding the sensor electrode. When the sensor electrode of such sensor head is driven by a high-frequency signal, the high-frequency signal changes in accordance with the distance between the sensor head and the measurement surface of the workpiece (i.e. electrostatic capacitance) to cause a change in terminal voltage of the sensor electrode. Accordingly, the distance ~~Gap~~ gap between the sensor head and the measurement surface can be measured by detecting the terminal voltage of the sensor electrode.

Please replace the paragraph beginning on page 6, line 15, with the following rewritten paragraph:

Such electrostatic capacitance requires that the sensor head normally opposes to the workpiece surface (i.e. opposes to the workpiece along normal line direction of the surface) in measuring the workpiece. This is because, when the sensor head is not in normal opposing condition relative to the workpiece surface, electrostatic capacitance between the portion around the tip end of the sensor head and the measurement surface is not uniformly distributed, which results in the change in the sensitivity characteristics, so that the distance ~~Gap~~ gap cannot be correctly measured. In other words, when such non-contact probe is used in a scanning measurement where the workpiece surface may not be constantly in normal-opposing condition relative to the sensor head, the surface profile of the workpiece may not be correctly measured.

Please replace the paragraph beginning on page 26, line 31, with the following rewritten paragraph:

The profile processing is conducted for all of the sampled position information, so that the actual profile of the workpiece surface can be obtained (ST207). The process is repeated until correction for every sampling data is completed, and the process is terminated when the correction for every sampling data is completed.

Please add the following new paragraph after the paragraph ending on line 30 of page 30:

The process from generating a profile vector is repeated until a predetermined completion condition is satisfied at ST53, and the process is terminated when the completion condition is satisfied.